

REMARKS/ARGUMENTS

Claims 1, 3-7, 9-12, and 14-22 have been resubmitted. Claims 1, 7, 12, and 15 have been amended. Claims 2, 8, and 13 have (previously) been canceled. No new claims have been added.

The Examiner rejected Claims 1, 3-7, 9-12, and 14-22 under 35 U.S.C. Section 103(a) as being unpatentable over Lippert et al. (U.S. Patent Application No. 2002/0024495 A1) in view of Task et al. (U.S. Statutory Invention Registration H1599).

Examiner Interview

On January 28, 2004, a telephone interview was conducted between the Examiner and his supervisor and Applicant's representative. A proposed amendment of the claims and possible arguments relating to the proposed amendment were presented. The references U.S. Patent Application No. 2002/0024495 A1 (Lippert et al.) and U.S. Statutory Invention Registration H1599 (Task et al.) were discussed. U.S. Patent No. 6,196,845 B1 (Streid) was also discussed. No agreement was reached.

Lippert et al.

Training for the use of night vision goggles has, up to the present invention, followed one of two primary approaches. The first primary approach (simulation) is to "understand" the physics of how a night vision goggles system works, model that understanding in software, and produce (e.g., using computer simulation and displays) an image for the user (trainee) that looks like the image that would be provided by an actual (real) night vision goggles system (the trainee does not use actual night vision goggles). The second primary

approach (stimulation) is to project an image on a screen, and use a pair of real night vision goggles to view the image, attempting to provide enough intensity via the screen image to adequately stimulate the night vision goggles.

Both approaches have generally been found to be unsatisfactory. For example, see Streid at col. 1, lines 58-67 and col. 2, lines 1-25. A major problem of the second approach has been providing enough dynamic range of intensity to adequately stimulate the night vision goggles. For example, traditional CRTs (cathode ray tubes) (including R-G-B type CRTs) - such as scanner assembly 84 used by Lippert et al. (Fig. 4 and paragraph [0037]) or scanner 1110 (Fig. 11 and paragraph [0064]) or scanner 1154 (Fig. 12 and paragraphs [0067] - [0069] and [0071]) - that combine all the projected wavelengths within a single CRT do not provide enough image intensity, especially at the higher order intensity portions of the range of irradiance.

The present invention (as claimed by amended claims 1, 7, 12, and 15) introduces a hybrid approach which, unlike the first approach, introduces actual night vision goggle hardware, e.g., the image intensifier tube 14, into the simulation and which, unlike the second approach, provides a simulated image rather than having the trainee try to view an image of insufficient intensity range through actual night vision goggles.

Unlike Lippert et al., the present invention (as claimed by the amended claims) stimulates an image intensifier tube simultaneously using three separate CRT tubes (or scanning displays) allocated to different parts of the intensity range, rather than using a single scanning display for the entire range as in Lippert et al. as noted above. For example, each separate CRT may be set to output (to stimulate the image intensifier tube) a distinct portion of the infrared spectrum, where it would otherwise not be possible to provide the entire spectrum range from a single CRT display. Thus, the present invention (as

claimed by the amended claims) is able to provide a dynamic range of irradiance of about 200 dB (supported in the specification at lines 1-5 of paragraph [012] and lines 1-4 of paragraph [016]), far in excess of the prior art. For example, Streid asserts that developers have been unable to provide a dynamic range of at least 140 dB (col. 2, lines 40-45 and col. 2, lines 60-65).

Support for the amendment of claims 1, 7, 12, and 15 in these regards may be found in the specification at lines 1-5 of paragraph [012], lines 13-15 of paragraph [012], lines 2-4 of paragraph [015], lines 1-4 of paragraph [016], and lines 1-3 of paragraph [015].

In view of the foregoing, it is believed that the rejections based on Lippert et al., whether alone or combination with other references, should be withdrawn.

Task et al.

Task et al. use night vision goggles to view an actual (not simulated) image and then filter and parse the output (col. 5, lines 65-67 and col. 6, lines 8-10) to provide enhancement of the image. Thus, Task et al. allocates spectral ranges at the output of the image intensifier tube, rather than at its input as in the present invention (as claimed by amended claims 1, 7, 12, and 15). Because Task et al. is not concerned at all with training simulation and does not teach any system or structural similarity to the present invention in regards to providing increased dynamic range of irradiance for stimulation of an image intensifier for simulation, it appears that Task et al. are completely irrelevant to the teachings of the present invention. Thus, there is nothing in Task to be combined with the teachings of Lippert et al.

Therefore, it is believed that any rejections based on Task et al., either alone or in combination, should be withdrawn, in light of the new amendments.

Streid

Streid uses a combination of traditional CRT raster imaging and a “calligraphic” display - which is distinct from the approach of the present invention as claimed by the amended claims - in order to provide an increased dynamic range of irradiance. The two types of display in Streid are not projected simultaneously (in contrast to the present claims as amended) but are time-multiplexed (col. 3, lines 48-56). The CRTs are conventional RGB projectors (col. 8, lines 5-10). Only one projector is used for each screen (col. 8, lines 15-17), in contrast to the three projectors used for image intensifier tube stimulation as claimed by the amended claims.

Furthermore, Streid teaches the second approach described above, using actual “substantially unmodified” night vision goggles (col. 3, lines 23-25), in contrast to the hybrid approach as claimed by the present claims.

Applicant thus submits that Streid teaches away from the present invention in more than one respect. Furthermore, there is no suggestion in Lippert's use of a conventional RGB display to use any other kind of display and even if Streid were combined with Lippert, the combination would still teach stimulation of image intensifier tube using a single projector for time-multiplexed raster/calligraphic display, and that is incompatible with the multiple projected, optically combined hybrid approach of the present invention (as claimed by the amended claims). In addition, even if Task were combined with any of the other references, there is no teaching in Task regarding increasing the dynamic range of image intensifier tube stimulation for simulation purposes, and thus there is no motivation to combine Task with any of the other references in regard to the current amendments.

Therefore, it is believed that claims 1, 7, 12, and 15 are now in condition for allowance.

CONCLUSION


Applicant would like to thank the Examiner for the telephone interview of January 28, 2004. In such interview the Examiner reviewed a proposed amendment to the claims and suggested that Applicant review the Streid patent.

Reconsideration and withdrawal of the Office Action with respect to Claims 1, 3-7, 9-12, and 14-22 is requested. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

By:



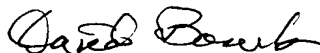
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